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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/942,926	08/31/2001	George Malcolm Swift Joynes	3036/50371	8942

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EXAMINER
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JACKSON, ANDRE K

ART UNIT	PAPER NUMBER
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2856

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/942,926

**Applicant(s)**JOYNES, GEORGE MALCOLM  
SWIFT**Examiner**

André K. Jackson

**Art Unit**

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5,7-10,13 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7-10,13,15,16 and 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-5,7-10,13,15,16 and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Applicant has amended the claims to include the limitation of "...the spectral bands and from the determined spectral bands determining a corresponding flow rate and if the corresponding flow rate exceeds a predetermined value..." The Examiner cannot find any recitation within the specification of this amendment within the disclosure. The disclosure states that the amplitudes of the bands are compared with predetermined values to determine a leak condition. The disclosure does not contemplate having determined spectral bands to determine a corresponding flow rate.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Bosselaar et al. (WO9525264)

Regarding claim 1, Bosselaar et al. discloses in "Acoustic apparatus for examining a pipeline for leaks" sensing vibrations induced in a fluid system (Abstract); segments the sensed vibrations into two spectral frequencies (Abstract) and comparing the amplitudes of the frequencies with predetermined values to determine the spectral bands and from the determined spectral bands determining a corresponding flow rate and if the corresponding flow rate exceeds a predetermined value, determining a leak condition (Abstract, Column 2,3).

Regarding claim 7, Bosselaar et al. disclose sensing vibrations induced in a fluid system (Abstract); segmenting the sensed vibrations into two spectral frequencies (Abstract) and a comparator (6) for comparing the amplitudes of the spectral bands with predetermined values to determine a leak condition (Abstract Columns 2,3).

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bosselaar et al. in view of Kiewit.

Regarding claim 8 Bosselaar et al. do not disclose where the sensor is known to include a piezo-electric material. However, Kiewit discloses where the sensor is known to include a piezo-electric material (Column 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Bosselaar et al. to include where the sensor is known to include a piezo-electric material. By adding this feature the apparatus would be able to precisely detect the leakage.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bosselaar et al. in view of Kiewit and in further view of Braathen et al.

Regarding claim 9, Bosselaar et al. do not disclose a sensor that includes a PVDF film. However, Braathen et al. disclose a sensor that includes a PVDF film (Column 1, lines 32 and 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Bosselaar et al. to include where a sensor includes a PVDF film since using the film makes for an easier application to the pipe.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bosselaar et al. in view Kiewit and in further view of Roy (GB 2335041).

Regarding claim 10, Bosselaar et al. do not disclose where the sensor is a strain gauge, geophone or a hydrophone. However, Roy discloses a sensor, which is a hydrophone (26). Therefore, to modify Bosselaar et al. to include a hydrophone would have been obvious to one of ordinary skill in the art at the time of the invention since the use of various acoustic devices is well known in the art.

9. Claims 1-3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiewit in view of Jordan.

Regarding claim 1, Kiewit discloses sensing vibrations induced in a fluid system (56); segments the sensed vibrations into two frequencies (Abstract, Figure 3). Kiewit et al. disclose using amplitudes at a frequency and a ratio of amplitudes to determine a leak and the amplitudes of the frequencies with predetermined values to determine the spectral bands and from the determined spectral bands determining a corresponding flow rate and if the corresponding flow rate exceeds a predetermined value, determining a leak condition (Abstract, Column 5, Column 3 and Column 2). Kiewit does not explicitly disclose separating the vibrations into two frequency spectrums. However, Jordan discloses in "Apparatus and method for detecting ultrasonic waves propagated from within a selected distance" separating the vibrations into two frequency spectrums (Page 1,

lines 3-5) and comparing the amplitude of one band to another (Page 2, lines 9-11; page 3, lines 26-31). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kiewit to include separating the vibrations into two frequency spectrums. By adding this feature the apparatus would be able to precisely distinguish the leak in the pipe.

Regarding claim 2, Kiewit discloses where attaching a sensor to the fluid system to obtain data indicative of fluid flow (Figure 1).

Regarding claim 3, Kiewit discloses where the sensor is known to include a piezo-electric material (Column 2).

Regarding claim 13, Kiewit discloses one sensor mounted on the exterior of a pipe (Figure 1) for sensing vibrations induced by fluid flow in the pipe and providing an output of indicative of the vibrations (Columns 3 and 4); segmenting the sensed vibrations into two frequencies (58) and a comparator (processor) for comparing the amplitudes of the frequencies with predetermined values the amplitudes of the frequencies with predetermined values to determine the spectral bands and from the determined spectral bands determining a corresponding flow rate and if the corresponding flow rate exceeds a predetermined value, presence of a leak (Abstract, Column 5, Column 3 and Column 2). Kiewit does not explicitly disclose separating the vibrations into two frequency spectrums. However, Jordan discloses separating the vibrations into two frequency

spectrums (Page 1, lines 3-5) and comparing the amplitude of one band to another (Page 2, lines 9-11; page 3, lines 26-31). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kiewit to include separating the vibrations into two frequency spectrums. By adding this feature the apparatus would be able to precisely distinguish the leak in the pipe.

10. Claims 4 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiewit in view of Jordan and in further view of Braathen et al.

Regarding claim 4, Kiewit does not disclose a sensor that includes a PVDF film. However, Braathen et al. has a sensor that includes a PVDF film (Column 1, lines 32 and 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kiewit to include a sensor that includes a PVDF film since using the film makes for an easier application to the pipe.

Regarding claim 16, Kiewit does not disclose a sensor that includes a PVDF film. However, Braathen et al. disclose a sensor that includes a PVDF film (Column 1, lines 32 and 33). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kiewit to include where a sensor includes a PVDF film since using the film makes for an easier application to the pipe.



11. Claims 5 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiewit in view of Jordan and Braathen et al. and in further view of Roy (GB 2335041).

Regarding claim 5, Kiewit do not disclose whether the sensor is a strain gauge, geophone or a hydrophone. However, Roy discloses "Detecting leaks in pipes" which has a sensor, which is a hydrophone (26). Therefore, to modify Kiewit to include a hydrophone would have been obvious to one of ordinary skill in the art at the time of the invention since the use of various acoustic devices is well known in the art.

Regarding claim 17, Kiewit do not disclose whether the sensor is a strain gauge, geophone or a hydrophone. However, Roy discloses a sensor, which is a hydrophone (26). Therefore, to modify Kiewit to include a hydrophone would have been obvious to one of ordinary skill in the art at the time of the invention since the use of various acoustic devices is well known in the art.

### ***Response to Arguments***

12. Applicant's arguments with respect to claims 1-5, 7-10, 13, 15, 16 and 17 have been considered but are moot in view of the new ground(s) of rejection.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2856

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

February 2, 2005

  
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